

Instructions

Form E44 - Wet Cooling Towers

Emission Calculations Procedures:

Facilities may use the default emission factors (EFs) listed in Table 1 with equation (1), to estimate the PM emissions. Alternatively, facilities may use equation (2) to estimate the PM emissions (if the required site specific parameters are available).

$$E = Q \times EF \times OH \times 0.0005 \quad (\text{Equation 1})$$

Where:

E = Annual Emissions, tons/year

Q = Cooling tower circulating water rate, 1000 gallons/day

EF = Emission factor given in Table 1 and expressed in lb/1000 gallon per day

OH = Annual operating days (days/year)

Table 1 - Default Emission Factors for Cooling Towers

Industry Type	Process Unit/ Throughput	PM ₁₀ Emission Factor
Chemical Mfg	1000 gallon / day	0.019
Others	1000 gallon / day	0.019

Reference: AP-42, Section 13.4, Table 13.4-1. The uncontrolled PM₁₀ emission factor is 0.019 lb per 1000 gallon/day.

Assume PM_{2.5} = PM₁₀ = PM

Alternative PM₁₀ Emission Calculation Method:

Facilities may also use Equation (2) as listed below (if the site-specific parameters are available) to estimate the PM₁₀ emissions. Please include the emission calculations that were used to determine the actual PM₁₀ emissions.

$$E = V \times TDS/10^6 \times n_{\text{drift}} \times D_{\text{H}_2\text{O}} \times 60 \times OH \times 0.0005 \quad (\text{Equation 2})$$

Where:

E = Annual Emissions, tons/year

V = Cooling tower circulating water rate (gal/min)

TDS = Concentration of total dissolved solids in circulating water (ppm by weight)

n_{drift} = Drift loss of circulating water (%). If unknown, use default value of 0.02%.

$D_{\text{H}_2\text{O}}$ = Density of water, 8.34 lb/gal

60 = Conversion from minutes to hours

OH = Annual Operating hours (hours/year)

The "Page Identifier" box at the very bottom is a place where you can enter your own identifier for this copy of this form among other pages in your emissions inventory submittal.

Louisville Metro Air Pollution Control District

Form E44 - Wet Cooling Towers

Plant ID:		Emission Year:	
Company Name:			
Plant Street Address:			
Emission Unit:			
Form Completed by:		Date:	
E-Mail Address:			

Required Data					
Tower Number	Tower Type (Counter Flow, Cross Flow, Natural or Induced Draft)	Range of TDS	Operating Schedule (days/yr)	Throughput (1000 gal/day)	PM10 Emissions (tons/yr)

Comments or explanations to clarify any data included on this page:

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